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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,419	02/13/2004	Robert H. Wollenberg	T-6318A (538-69)	9057

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Michael E. Carmen, Esq.
M. CARMEN & ASSOCIATES, PLLC
1201 RXR Plaza
Uniondale, NY 11556

EXAMINER	
LUNDGREN, JEFFREY S	

ART UNIT	PAPER NUMBER
1639	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/779,419	WOLLENBERG, ROBERT H.	
	Examiner	Art Unit	
	JEFFREY S. LUNDGREN	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 August 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *64-83* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *64-83* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the Claims

Applicants have cancelled all claims and filed new claims 64-83, which are the subject of the Office Action below.

New Grounds of Rejection – Necessitated by Amendment

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. § 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 64-66, 72 and 80, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Heneghan *et al.*, JOURNAL OF ENGINEERING FOR GAS TURBINES AND POWER-TRANSACTIONS OF THE ASME, (JUL 1993) Vol. 115, No. 3, pp. 480-485), in view of Bartz *et al.*, U.S. Patent No. 5,814,110, issued on September 29, 1998.

Claim 64 is directed to A high throughput method for screening fuel additive composition samples, under program control, comprising:

(a) conducting molecular modeling of at least one fuel additive to formulate a leading candidate fuel additive composition sample for testing;

(b) containing a plurality of the leading candidate fuel additive composition samples in a plurality of test receptacles, each sample comprising at least one fuel additive;

(c) measuring the deposit formation of each sample to provide deposit formation data results for each sample; and,

(d) outputting the results of step (c).

Heneghan teaches a method for measuring the performance of fuel additives in a plurality of fuel samples, wherein a measured performance criteria is measuring deposit formation from the fuel sample (see item 4 on page 481; item 7 on page 482; and Figure and description thereof).

Heneghan summarizes that the results from the deposit formation of the sample can be "used" for further calculation and *modeling*:

> "These observations suggested a complicated relationship between the formation of carbon deposits and the temperature-driven consumption of oxygen. A simple analysis, based on a bimolecular reaction rate, correctly accounted for the shape of the oxygen consumption curve for various fuels. This analysis yielded estimates of global bulk parameters of oxygen consumption. ***The test rig yielded quantitative results, which will be very useful in*** evaluating fuels additives, understanding the chemistry of deposit formation, and eventually ***developing a global chemistry model***."

Heneghan, Abstract.

Heneghan also teaches testing a number of additives in the Pheonix rig, such a JFA-A, and teaches that further testing based the results has been carried out:

> "Currently, testing continues to elevate additives of four major varieties; anti-oxidants, dispersants, detergents, and metal detection."

Heneghan, page 483, col. 2, first paragraph.

See also the mathematical model and formulae provide on page 484, cols. 1 and 2.

Heneghan finally concludes:

> "In the future, it will be interesting to study the oxygen and methane behavior for fuel additives to determine whether the observed trends for oxygen, methane, and deposits continue. So far, these trends clearly suggest that the consumption of oxygen at lower temperature and the more rapid production of methane indicate fewer deposits on the test section walls."

Heneghan, page 485, col. 1, last paragraph.

As in claims 65 and 66, Heneghan also teaches that detergents are additives for the testing of their method (see Figure 9 and description thereof). As in claim 72, Heneghan teaches that the heating is carried out in the presence of air (page 481, first partial paragraph; *i.e.*, nitrogen/oxygen mixture). As in claim 80, Heneghan suggest performing further calculations (see Abstract).

Although Heneghan teaches the use of his molecular modeling for further refinement of the fuel additives, he does not explicitly state that it be the first step in the high throughput screening process.

Bartz teaches certain fuel compositions having optimized additives, wherein the additives are identified by computer modelling (see col. 3, lines 50-67 and col. 4, lines 1-5; see also Figure 11, and description thereof). The use of the information from the calculations is used to develop lead compounds (cols. 6-8).

One of ordinary skill in the art would have had a reasonable expectation of success in arriving at the invention as claimed because each of Heneghan and Bartz are directed to the screening of fuel additives for identifying compounds that provide a superior additive for the intended fuel. One of ordinary skill in the art would have recognized the benefit of first using a computer to screen a set of putative compounds for use as a fuel additive as taught by Bartz with the method of Heneghan because of the advantages that such modeling approaches provide regarding speed and saving in experimental efforts. Therefore, the invention as a whole was *prima facie* obvious at the time it was made.

Claims 64-69, 72-75 and 80 rejected under 35 U.S.C. § 103(a) as being unpatentable over Heneghan and Bartz as applied to claims 64-66, 72 and 80 above, and further in view of Cherpeck, U.S. Patent No. 5,399,178, issued on March 21, 1995.

The limitations of claims 64-66, 72 and 80, and the corresponding teachings in the Heneghan and Bartz are found in the rejection above, and are hereby incorporated into the instant rejection. And although the disclosures of Heneghan and Bartz relate to further embodiments set forth in the claims, neither explicitly teaches the full scope of what is claimed as itemized below by the teaching of Cherpeck.

Cherpeck teaches a series of chemical compound analogs that serve as fuel additives. Cherpeck teaches testing of multiple fuels samples by measuring their deposit formation (see Example 3). As in claims 65-67, the additives of Cherpeck are detergents, such as Mannich reaction products. As in claim 68, Cherpeck teaches heating the sample to a predetermined temperature for a predetermined period of time, and measuring the weight loss to determine deposit formation mass. As in claim 69, Cherpeck teaches that the temperature is about 100 °C (i.e., 200 °F). As in claim 72, Cherpeck teaches heating the sample in the presence of air (see Example 3). As in claims 73 and 74, Cherpeck measures the deposits after two temperatures, wherein the second temperature is higher than the first (see Example 1). As in claim 75, Cherpeck teaches the inert solvent octane.

One of ordinary skill in the art would have had a reasonable expectation of success in arriving at the invention as claimed because each of Heneghan, Bartz and Cherpeck are each directed toward the development of improved fuels compositions comprising additives. One of ordinary skill in the art would have found the detergents and approach to measuring deposit formation as taught by Cherpeck to be advantages in providing improved fuels, as well as recognized routine testing procedures of the fuels (*i.e.*, mass of deposits and performed at conventional temperatures). Therefore, the invention as a whole was *prima facie* obvious at the time it was made.

Claims 64-69, 72-77 and 79-81 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Heneghan, Bartz and Cherpeck, as applied to claims 64-69, 72-75 and 80 above, and further in view of Burow *et al.*, U.S. Patent Application Publication No. 2002/0090320 A1, published on July 11, 2002.

The limitations of claims 64-69, 72-75 and 80, and the corresponding teachings from the prior art are found in the rejection above and are hereby incorporated into the instant rejection. The limitations of claims 76, 77 and 79-81 are not expressly taught by Heneghan, Bartz and Cherpeck.

Burow is directed to a system and method for high throughput processing using sample holders. As in claims 76 and 77, the system has a plurality of work perimeters, with a rotational

robot preferably associated with each work perimeter, wherein the system and method are flexible, efficient, and robust high throughput processing, such as screening of chemical and/or biochemical libraries (see *Summary of the Invention*). Burow teaches the linking of the system components with the robot for full automation, and control by a computer (paragraphs 0073 and 0074). As in claim 79 and 80, Burow teaches recording the data on a data carrier (paragraph 0093), especially in view of Heneghan's method for further use of the daya; and as in claim 81, the data carrier is in a remote location from the robot assembly (paragraph 0136).

One of ordinary skill in the art would have had a reasonable expectation of success in arriving at the invention as claimed because each of Heneghan, Bartz, Cherpeck and Burow are directed to using analytical laboratory instrumentation for chemical analysis. One of ordinary skill in the art would have recognized the advantages of using generic and routine robotic based systems, computers, and remote operations as taught by Burow for the types of chemical analysis of Cherpeck because of the increase throughput provided by these assemblies when dealing with voluminous sample sizes. Accordingly, the invention as a whole is *prima facie* obvious over the art of record.

Claims 64-69, 71-75, 80, 82 and 83, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Heneghan, Bartz, and Cherpeck, as applied to claims 64-69, 72-75 and 80 above, and further in view of Cherpeck 2, U.S. Patent No. 5,306,315, issued on April 26, 1994.

The limitations of claims 64-69, 72-75 and 80, and the corresponding teachings from the prior art are found in the rejection above and are hereby incorporated into the instant rejection.

The limitations of claim 70 are not expressly taught by Heneghan, Bartz, and Cherpeck.

Cherpeck 2 teaches measuring fuel deposits by TGA in the presence of air, and teaches raising the termperatures and measuring the deposits at different temperatures (see Example 14), and accordingly meets the limitations of claims 70. The compounds class of claim 67 (polyalkylphenoxyalkanols), is met by the compounds in Example 2. As in claim 75, Cherpeck 2 teaches an inert organic solvent (fourth paragraph, Summary of the Invention).

Although Cherpeck does not explicitly recite "about 50 ml" and "about 20 ml," as in claim 82 and 83, Cherpeck 2 teaches a mass of the fuel additive samples of approximately 25 mg, thereby reading on the limitations of "about 50 ml" and "about 20 ml".

One of ordinary skill in the art would have had a reasonable expectation of success in arriving at the invention as claimed because each of Heneghan, Bartz, Cherpeck and Cherpeck 2, are directed to using analytical laboratory instrumentation for chemical analysis of fuels. One of ordinary skill in the art would have recognized the advantages of using generic and routine robotic based systems, computers, and remote operations as taught by Burow for the types of chemical analysis of Cherpeck because of the increase throughput provided by these assemblies when dealing with voluminous sample sizes. One of ordinary skill in the art would have found the detergents and approach to measuring deposit formation as taught by Cherpeck 2 to be advantages in providing improved fuels, as well as recognized routine testing procedures of the fuels (*i.e.*, mass of deposits and performed at conventional temperatures and using TGA). Accordingly, the invention as a whole is *prima facie* obvious over the art of record.

One of ordinary skill in that art would have had a reasonable expectation of success in arriving at the invention as claimed because Cherpeck 2 teaches the analysis of fuel samples using TGA with an approximate sample size reasonably close to the claimed sample size, especially given the claimed language of "about" in claims 82 and 83 (see MPEP § 2144.05). Therefore, the invention as a whole was *prima facie* obvious at the time it was made.

Claims 64-69, 72-75, 78 and 80 rejected under 35 U.S.C. § 103(a) as being unpatentable over Heneghan and Bartz as applied to claims 64-66, 72 and 80 above, and further in view of Chadwick, U.S. Patent Appl. Publication No. 2004/0230397, published November 18, 2004.

The limitations of claims 64-66, 72 and 80, and the corresponding teachings from the prior art are found in the rejection above and are hereby incorporated into the instant rejection.

Although Heneghan and Bartz do not retest fuels that have not passed the failing threshold, neither explicitly states a threshold values that eliminates certain subsequent testing of fuel additives as in claim 78.

Similar to Heneghan, Chadwick is also directed to high throughput screening processes. Chadwick teaches high throughput screening processes with decision making systems and

methods for advancing the most effective research and development efforts. One of the aspects of high throughput screening that Chadwick teaches is using a threshold value or cutoff to determine which tests or compounds no longer have further interest or usefulness as a result of the compounds not meeting certain criteria (paragraph 0096).

One of ordinary skill in the art would have had a reasonable expectation of success in arriving at the invention as claimed because each of Heneghan, Bartz and Chadwick are directed towards the screening of compounds from a group of compounds. One of ordinary skill in the art would have recognized the advantages of having certain thresholds in the testing of fuels to eliminate candidate additives that no longer meet the experimental requirements as taught by Chadwick because of the increases in efficiency that such an approach would provide with the method of Heneghan and Bartz, such as by eliminating compounds having excess deposit formation. Accordingly, the invention as a whole is *prima facie* obvious over the art of record.

Common Ownership of Claimed Invention Presumed

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. §§ 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined

application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 64-83 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the claims of copending Application No. 12/799,817. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims are drawn to the non-distinct high throughput fuel screening methods.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusions

No claim is allowable.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

If Applicants should amend the claims, a complete and responsive reply will clearly identify where support can be found in the disclosure for each amendment. Applicants should point to the page and line numbers of the application corresponding to each amendment, and provide any statements that might help to identify support for the claimed invention (*e.g.*, if the amendment is not supported *in ipsis verbis*, clarification on the record may be helpful). Should Applicants present new claims, Applicants should clearly identify where support can be found in the disclosure.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Jeff Lundgren whose telephone number is 571-272-5541. The Examiner can normally be reached from 7:00 AM to 5:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Christopher Low, can be reached on 571-272-0951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jeffrey S. Lundgren/
Primary Examiner, Art Unit 1639